

TD 2 , EXERCICE 4

$$0) G = (m(X), m(Y)) = (29.155, 2845.727)$$

1)

$$2) G_1 = (x_1, y_1) = (6.48, 3358)$$

$$G_2 = (x_2, y_2) = (48.05, 2418.8333)$$

$$a = \frac{y_2 - y_1}{x_2 - x_1} = -22.592$$

$$Y = -22.592 * (X - 6.48) + 3358$$

$$3) C(X, Y) = m(XY) - m(X)m(Y)$$

$$= \frac{1}{n} \sum_{i=1}^n x_i y_i - m(X)m(Y)$$

$$= -10836.721$$

$$4) D_{Y|X} : Y = aX + b$$

$$a = \frac{Cov(X, Y)}{V(X)} = -17.163$$

$$b = m(Y) - am(X) = 3346.122$$

On trouve :

$$Y = -17.163 * X + 3346.122$$

$$5) r(X, Y) = \frac{Cov(X, Y)}{S(X) S(Y)} = -0.836$$

relation linéaire faible entre X et Y